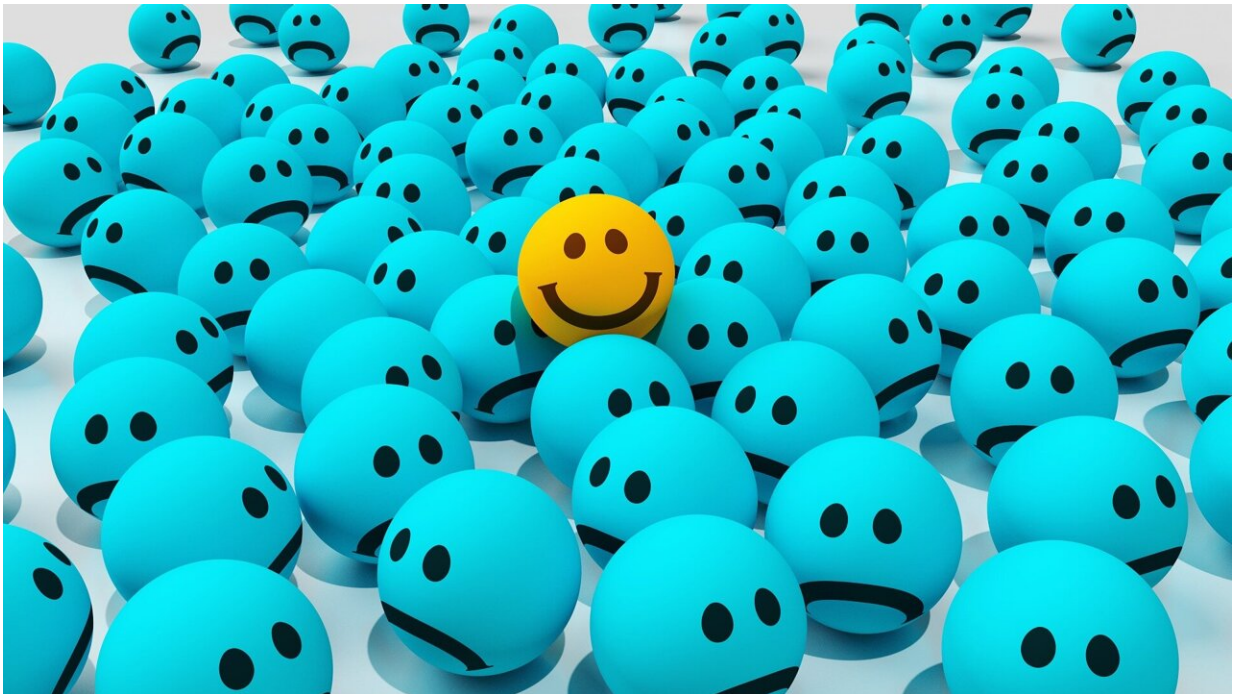# Study shows that a posed smile can improve mood

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Credit: Pixabay/CC0 Public Domain

When we're happy, we smile. But does it work the other way? Can posing facial muscles in a smile brighten our mood?

This question has been part of a long-standing debate among psychology researchers about whether facial expressions influence our emotional experience, an idea known as the facial feedback hypothesis. In a recent

paper published in *Nature Human Behavior*, an international collaboration of researchers led by Stanford research scientist Nicholas Coles found strong evidence that posed smiles can, in fact, make us happier.

The effect isn't strong enough to overcome something like depression, said Coles, but it provides useful insight into what emotions are and where they come from.

"We experience emotion so often that we forget to marvel at just how incredible this ability is. But without emotion, there's no pain or pleasure, no suffering or bliss, and no tragedy and glory in the human condition," he added. "This research tells us something fundamentally important about how this emotional experience works."

Psychologists still aren't sure about the origins of this central part of the human condition. One theory is that our conscious experience of emotions is based off sensations in the body—the idea that the feeling of a rapid heartbeat provides some of the sensation we describe as fear, for example. Facial feedback has often been cited as evidence for this theory, but some recent experiments have called it into question.

Before completing this project, Coles considered himself a fence-sitter on the issue. There had been seminal facial feedback research suggesting that participants found Gary Larson's "The Far Side" comics funnier when they held a pen or pencil in their teeth without letting their lips touch it (supposedly activating the same muscles as a smile). But in 2016, 17 different labs tried and failed to replicate these results, casting the hypothesis into doubt.

When Coles conducted a meta-analysis of previous studies on the subject in 2019, which included a variety of different methods, his results seemed to indicate there was at least some evidence supporting

facial feedback. So he decided to try to settle the matter in a way that would convince both skeptics and believers. He organized the Many Smiles Collaboration, a group that included people on both sides of the issue as well as fence-sitters like Coles, and together they devised a methodology that everyone was satisfied with.

"Rather than quibble and debate over Twitter and through journal articles, which would take decades and probably not be that productive, we said, "Let's just come together and design something that would please both sides,'" Coles said. "Let's figure out a way that we could potentially convince proponents that the effect isn't real, and potentially convince critics that the effect is real."

The researchers created a plan that included three well-known techniques intended to encourage participants to activate their smile muscles. One-third of participants were directed to use the pen-in-mouth method, one-third were asked to mimic the facial expressions seen in photos of smiling actors, and the final third were given instructions to move the corners of their lips toward their ears and lift their cheeks using only the muscles in their face.

In each group, half the participants performed the task while looking at cheerful images of puppies, kittens, flowers, and fireworks, and the other half simply saw a blank screen. They also saw these same types of images (or lack thereof) while directed to use a neutral facial expression.

In order to disguise the goal of the trial, the researchers mixed in several other small physical tasks and asked participants to solve simple math problems. After each task, participants rated how happy they were feeling.

The Many Smiles Collaboration collected data from 3,878 participants

from 19 countries. After analyzing their data, the researchers found a noticeable increase in happiness from participants mimicking smiling photographs or pulling their mouth toward their ears. But much like the 2016 group, they didn't find a strong mood change in participants using the pen-in-mouth technique.

"The effect wasn't as reliable with the pen-in-mouth condition," Coles said. "We're not sure why. Going into the study, we assumed that all three techniques created the correct muscular configuration for an expression of happiness. But we found some evidence that the pen-in-mouth condition may not be actually creating an expression that closely resembles smiling."

For instance, the act of holding the pen may require some amount of teeth-clenching that isn't usually present in a genuine smile, which could be a confounding factor. Nonetheless, the evidence from the other two techniques is clear and provides a compelling argument that human emotions are somehow linked to muscle movements or other physical sensations.

"The stretch of a smile can make people feel happy and the furrowed brow can make people feel angry; thus, the conscious experience of emotion must be at least partially based on bodily sensations," Coles said. "Over the past few years, the science took one step back and a few steps forward. But now we're closer than ever to understanding a fundamental part of the human condition: emotion."